Introduction

This report on the International Collaborative Exercises (ICE) Programme in Latin America and the Caribbean (LAC) looks at the development of ICE within the region examining in detail the participation in recent years and performance in 2018/1 round of the programme. The report also provides a snapshot of the situation regarding the emergence of new psychoactive substances (NPS) globally and in the region.

The UNODC International Quality Assurance Programme has been operating since 1995 and forms part of the Scientific and Forensic Services provided to forensic drug testing and toxicology laboratories worldwide. An important part of the UNODC International Quality Assurance Programme is the International Collaborative Exercises (ICE), a proficiency test which aims to assist drug testing laboratories worldwide in assessing their own performance and taking corrective actions, where appropriate. Participation in such exercises is recognised by the International Organization for Standardization in ISO/IEC 17025-2005: “General requirements for the competence of testing and calibration laboratories” as contributing to assuring the quality of test results.

The ICE programme allows participating laboratories to continuously monitor their performance on a global scale. The options available for participation are in the analysis of drugs in Seized Materials (SM) and in Biological Specimens (BS, specifically urine). Upon receipt and analysis of ICE test samples, participants can submit their results through the web-based ICE portal and receive immediate feedback on their performance. Upon completion of each round, the overall analytical results are evaluated by UNODC and an international panel of forensic experts which oversees the implementation of ICE and offers guidance and support in addressing relevant quality issues.

Following evaluation, summary reports of the performance of participating laboratories in both the SM and BS test groups are made available to participants through the ICE portal and the UNODC website. These summary reports allow participants to evaluate their performance and compare their results with laboratories around the world while maintaining confidentiality. To assist in the correct identification and quantification of the test samples, participants are offered tools such as recommended methods of analysis, guidelines for the implementation of quality management programs and reference materials to eligible laboratories.

Participation

During 2018, 284 laboratories from 86 Member States participated in the ICE Programme. Within Latin America and the Caribbean, participation involved 46 laboratories from 13 countries, with laboratories participating in either SM, BS or both.
Figure 3. Analytical techniques used in LAC for analysis of ICE Samples in 2018/1.

The number of laboratories from Latin America and the Caribbean who participate in the ICE programme has increased in recent years. However, it is recognised that some participants continue to have difficulties with obtaining import authorization for the SM test samples and the reference samples for the SM and BS groups. This caused some delays in sending test samples and in the submission of results and has hindered the participation of a number of laboratories.

The continuous participation of laboratories in the ICE programme is a reflection of their consideration of the importance laboratory quality assurance and continuous monitoring of performance plays in assuring the quality and reliability of test results.

Analysis of ICE test samples

Laboratories are asked to analyse the test samples using the screening and confirmatory tests they employ routinely in casework. These may range from simple techniques such as colour tests and thin layer chromatography, to more advanced methods such as gas chromatography-mass spectrometry. The techniques used by participating laboratories from Latin America and the Caribbean are illustrated in figure 3.

By recording the techniques they use, the laboratories are able to assess their performance against that of other laboratories of similar capabilities and to identify any limitations of their performance compared with that of differently equipped laboratories. Indeed, the ICE programme is specifically designed as such to enable participation of laboratories with differing capacities.

Results from ICE round 2018/1

Qualitative analysis

Table 1 shows the composition of the SM and BS test samples in the 2018/1 round of the ICE programme and indicates the percentage of laboratories Globally and within Latin America and the Caribbean who correctly identified each test sample. Overall, the results for qualitative analysis within the SM test group were comparable to results worldwide with 94% or better, of laboratories within Latin America, correctly identifying the controlled substances and the adulterant present. Within the BS test group, the results were good for the commonly found substances morphine, nordazepam and 6-monoacetylmorphine, given the inherently higher level of difficulty in the analysis of the low concentrations of possibly multiple drugs in biological specimens and the complexity of the matrices. It is notable that correct identification of the less commonly encountered substances such as GHB and mephedrone was not high both globally and within Latin America and the Caribbean.

ICE participants should note that test samples can contain any of the substances in the ICE menu and screening and identification carried out should take this into account. The overall number of false positive/negative results reported by ICE participants continues to be low and while this is encouraging, laboratories reporting false positive or false negative results should investigate the reasons for this and corrective actions should be taken to continuously improve performance.

Table 1. Composition of SM and BS test samples and performance of participants in qualitative analysis in ICE 2018/1.
Quantitative analysis

Quantitative analysis of controlled substances is often governed by local legislation and the requirements of prosecution. While quantification of test samples within the ICE programme is not compulsory, participating laboratories are encouraged to perform quantification in order to get a better measure of their performance over time. z-Scores are a statistical parameter used in proficiency tests and collaborative exercises as a measure of performance in quantitative analysis and can be interpreted by ICE participants in line with ISO 13528:2005, section 7.4.2 and as follows:

\[ |z| < 2 = \text{satisfactory} \]
\[ 2 \leq |z| \leq 3 = \text{questionable} \]
\[ |z| > 3 = \text{unsatisfactory} \]

Figure 4 below shows the performance in quantitative analysis of cocaine in test sample 2018/1 SM-2 by laboratories from the region. We focus on cocaine because not all laboratories who perform quantification do so on all other substances.

New Psychoactive Substances

New psychoactive substances (NPS) are substances of abuse that have similar effects to substances under international control such as cannabis, cocaine, heroin, LSD, MDMA ("ecstasy") and methamphetamine. As of July 2009 119 Member States have reported the emergence of almost 900 individual NPS to the UNODC Early Warning Advisory (EWA). Figures 5 and 6 provide a snapshot of the NPS reported globally as well as the number of NPS reported by countries in LAC. According to reported data, similarly to global trends there is an increase on the number of synthetic opioids and sedative hypnotics in the region. Unlike the global trends there is also a significative increase on the number of dissociative/anaesthetic drugs reported in LAC.

Acknowledgments

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